



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 10/009,260 | 04/04/2002 | Stuart Maxwell | ATMOS.1.US | 8593 |
| 466 | 7590 | 02/15/2006 | EXAMINER | |
| YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202 | | | CONLEY, SEAN EVERETT | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1744 | |

DATE MAILED: 02/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

y

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/009,260 | Applicant(s) MAXWELL ET AL. | |
| | Examiner Sean E. Conley | Art Unit 1744 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on December 12, 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6-22 and 24-30 is/are pending in the application.
- 4a) Of the above claim(s) 24-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 6-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed December 12, 2005 has been received and considered for examination. Claims 1, 3, 4, 6-22 and 24-30 remain pending with 24-30 being withdrawn from consideration.

Claim Objections

2. Claim 10 is objected to because of the following informalities: It appears that claim 10 should depend from claim 9 instead of claim 8. Claim 10 recites "said synthetic polymer" and there is no antecedent basis for this limitation. Claim 9 recites that the emission pad is a porous synthetic polymer element and it appears that claim 10 was intended to depend from claim 9. Appropriate correction is required.

3. Claim 6 is objected to because of the following informalities: Claim 6 comprises a temperature range that is in parenthesis. It is unclear whether or not this range is intended to define the room temperature. The examiner suggests replacing this temperature range with the following language: "wherein said terpenoid vapour is released by evaporation from an emission pad at a room temperature of 17°C to 25°C". Appropriate correction is required.

Art Unit: 1744

4. Claim 21 is objected to because of the following informalities: Claim 21 recites "wherein the terpenoid compound or mixture thereof". This is inconsistent with the language of claim 1 which recites "a terpenoid or a mixture of terpenoids". The examiner suggests replacing the phrase "wherein the terpenoid compound or mixture thereof" with "wherein the terpenoid or a mixture of terpenoids". Appropriate correction is required.

5. Claims 19 and 22 are objected to because of the following informalities: Both of claims 19 and 22 contain the phrase "the or each terpenoid" which is inconsistent with the language of independent claim 1. The examiner suggest replacing "the or each terpenoid" with "the terpenoid or mixture of terpenoids". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6, 7 and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al. (U.S. Patent No. 5,567,416).

Regarding claims 1 and 7, Sato et al. discloses a method of removing or reducing the level of ozone in a generally enclosed environment, which comprises

Art Unit: 1744

releasing vapor from a terpenoid (d-limonene) into the environment at a controlled rate by natural unforced evaporation (see col. 9, lines 5-8) from an emission pad (polymeric resin pad formed in example 1) of porous absorbent material at a rate of 1.16 g/day (48.3 mg/hr). The emission pad is pre-impregnated by the terpenoid (see col. 9, lines 2-41; col. 6, lines 10-45; table 4; example 1).

Regarding claim 6, Sato et al. discloses that the terpenoid vapor is released at room temperature (see col. 9, lines 5-7).

Regarding claims 19- 22, Sato et al. discloses that the terpenoid is d-limonene (equivalent name for limonene) an essential oil found in the skin of oranges. Limonene is a terpene. Additionally, Sato et al. discloses that other terpenoids are suitable such as linalool which has a known flash point of 75°C (see col. 2, lines 17-47).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. as applied to claim 1 above.

Sato et al. fails to specifically teach releasing a terpenoid vapor at a rate of between 60 and 100mg per hour. However, Sato et al. does disclose that the amount of volatilization of the ozone removing agent (the terpenoid) is controlled appropriately by designing the size of the holes in the container housing the emission pad (see col. 9,

Art Unit: 1744

lines 1-12; table 4). The amount of volatilization, i.e., amount of supply per unit time, of terpenoid into the surrounding atmosphere should be appropriately determined in consideration of various factors, such as the amount of ozone that is to be decomposed. The amount of supply per unit time of terpenoid vapor is a result effective variable that determines whether or not the ozone is effectively decomposed. Therefore, it would have been obvious to use a release rate claimed by the applicant since it has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

8. Claims 8-13 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. as applied to claim 6 above, and further in view of Smith et al. (U.S. Patent No. 4,735,626).

Sato et al. fails to teach an emission pad that is produced by moulding and/or sintering a starting material comprising a high density polyethylene in particulate form having a particle size within the range of from 1 to 500 microns, wherein the pad has a pore size of between 10 and 100 microns and a void volume of from 25% to 70%. Sato et al. also fails to teach an emission pad weighing 5 to 15 grams before absorption and containing between 10 and 20 grams of terpenoid liquid after absorption.

Smith et al. discloses a method of freshening air in a generally enclosed environment at a consistent rate, which comprises releasing terpenoid vapor from a porous polymer support (equivalent to an emission pad) into the environment at a

Art Unit: 1744

controlled rate (see col. 1, lines 8-17; col. 3, line 55 to col. 4, line 68, particularly col. 4, lines 54-67). The method uses a lemon terpene and d-limonene in the citrus example (see col. 3, line 32). Furthermore, Smith et al. discloses that the porous polymer support is capable of releasing an essential oil into the atmosphere at a rate of 46mg/hr (see col. 5, line 37 to col. 6, line 14, especially cycle 4 in table 3). Additionally, regarding claim 8, Smith et al. discloses that the impregnated pad is packaged in a sealed container prior to use in order to retain the optimal amount of fragrance on the pad (see col. 1, lines 35-46). Regarding claim 9, Smith et al. discloses that the support element is a porous synthetic polymer element (see col. 2, lines 3-12). Regarding claim 10, Smith et al discloses that the synthetic polymer supports are produced by sintering or moulding a starting material comprising a synthetic thermo-plastic polymer in particulate form (see col. 1, line 67 to col. 2, line 5). Regarding claim 11, Smith et al. disclose a starting material is a high-density polyethylene (see col. 2, lines 18-20). Regarding claim 12, Smith et al. discloses that at least 80% by weight of the particles have a particle size within the range of from 1 to 500 micron (see col. 2, lines 18-24). Regarding claim 13, Smith et al. discloses that the emission element, before absorption of the fragrance or terpenoid, weighs 0.5 to 7 grams (see col. 2, lines 37-40). Regarding claims 16 and 17, Smith et al. discloses that the void volume of the emission element is in the range of from 25% to 70%, more preferably between 30% and 55% of the volume of the emission element (see col. 2, lines 37-45). Regarding claim 18, Smith et al. discloses an average pore size of the emission element is between 10 and 100 microns (see col. 2, lines 37-47). This reference has been relied upon to teach that it is

Art Unit: 1744

well known to use an emission pad such as the one taught by Smith et al. in order to release a terpenoid vapor into the atmosphere in order to freshen the air.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Sato et al. and replace the porous polymer resin emission pad with a functionally equivalent viable alternative means for dispensing a terpenoid at a rate of between 40 and 120mg per hour as taught by the porous synthetic polymer pad impregnated with a terpenoid in the invention to Smith et al. in order to release a terpenoid at a consistent level into the atmosphere.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Sato et al. and place the impregnated emission pad in a container configurable between an open position and a closed position as taught by Smith et al. in order to prevent premature emission of the terpenoid from the pad prior to use.

9. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. in view of Smith et al. as applied to claim 13 above, and further in view of Shibantai et al. (U.S. Patent No. 4,808,396).

Sato et al. in view of Smith et al. fail to teach the step of adding about 15 grams of terpenoid liquid to the emission element. However, Smith et al. discloses an emission element containing 1 to 2 grams of a terpenoid composition (see examples) and Sato et al. discloses adding 40-60 grams of terpenoid liquid to the emission pad to reduce ozone.

Shibanai et al. teaches that the concentration of the terpenoid in the ozone decomposing agent is adjusted depending upon where and for what purpose it is used. When it is used, for instance, in an electrophotographic copying machine in which ozone is formed with a low concentration, the concentration of the terpenoid should be low, while when it is used, for instance, for treatment and purification of water, the concentration of the terpenoid has to be high (see col. 5, lines 29-37).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Sato et al. in view of Smith et al. and include about 15 grams of terpenoid liquid in the emission element in order to decompose higher concentrations of ozone as taught by Shibanai et al.

Furthermore, the amount of terpenoid added to the emission pad is a result effective variable that varies the ozone decomposition of the method and it has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Sato et al. in view of Smith et al. and include about 15 grams of terpenoid liquid in the emission pad in order to optimize the method of decomposing ozone.

10. Claims 1, 6-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. in view of Sato et al.

Regarding claims 1, 6 and 7, Smith et al. discloses a method of freshening air in a generally enclosed environment, which comprises releasing terpenoid vapor from a porous polymer support (equivalent to an emission pad) into the environment at a controlled rate (see col. 3, line 55 to col. 4, line 68, particularly col. 4, lines 54-67). The method uses a lemon terpene and d-limonene in the citrus example (see col. 3, line 32). Furthermore, Smith et al. discloses that the porous polymer support is capable of releasing an essential oil into the atmosphere at a rate of 46mg/hr (see col. 5, line 37 to col. 6, line 14, especially cycle 4 in table 3). Smith et al. fails to specifically teach releasing the terpenoid vapor into the environment at a controlled rate by natural unforced evaporation from the emission pad in order to remove or reduce ozone.

Sato et al. discloses a method of removing or reducing the level of ozone in a generally enclosed environment, which comprises releasing vapor from a terpenoid (d-limonene) or a mixture of terpenoids into the environment at a controlled rate by natural unforced evaporation (see col. 9, lines 5-8) from an emission pad (polymeric resin pad formed in example 1) of porous absorbent material at a rate of 1.16 g/day (48.3 mg/hr), the emission pad having been pre-impregnated by the terpenoid (see col. 9, lines 2-41; col. 6, lines 10-45; table 4; example 1). Sato et al. further discloses that the terpenoid vapor is released at room temperature (see col. 9, lines 5-7). This reference has been relied upon to teach that it is well known to release a terpenoid vapor by natural unforced evaporation at room temperature and at a predetermined rate in order to reduce the level of ozone in the environment.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Smith et al. and expose the emission pad containing a terpenoid to unforced natural ventilation at room temperature as taught by Sato et al. in order to remove or reduce the level of ozone in a generally enclosed environment.

Regarding claim 8, Smith et al. discloses that the impregnated pad is packaged in a sealed container prior to use in order to retain the optimal amount of fragrance on the pad. The sealed container is opened when the emission pad is to be used (see col. 1, lines 35-46).

Regarding claim 9, Smith et al. discloses that the support element is a porous synthetic polymer element (see col. 2, lines 3-12).

Regarding claim 10, Smith et al discloses that the synthetic polymer supports are produced by sintering or moulding a starting material comprising a synthetic thermoplastic polymer in particulate form (see col. 1, line 67 to col. 2, line 5).

Regarding claim 11, Smith et al. disclose a starting material is a high-density polyethylene (see col. 2, lines 18-20).

Regarding claim 12, Smith et al. discloses that at least 80% by weight of the particles have a particle size within the range of from 1 to 500 micron (see col. 2, lines 18-24).

Regarding claim 13, Smith et al. discloses that the emission element, before absorption of the fragrance or terpenoid, weighs 0.5 to 7 grams (see col. 2, lines 37-40).

Regarding claims 16 and 17, Smith et al. discloses that the void volume of the emission element is in the range of from 25% to 70%, more preferably between 30% and 55% of the volume of the emission element (see col. 2, lines 37-45).

Regarding claim 18, Smith et al. discloses an average pore size of the emission element is between 10 and 100 microns (see col. 2, lines 37-47).

Regarding claim 20, Smith et al. discloses the use of an essential oil with the terpenoid compound. The terpenoid compound comprises orange oil along with lemon terpenes and d-limonene (see col. 3, lines 31-35).

Response to Arguments

11. Applicant's arguments, see pages 7-12, filed December 12, 2005, with respect to the rejection(s) of claim(s) 1, 5, 6, 9-13 and 16-22 under 35 U.S.C. 102(b) and claims 2-4 and 14-15 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sato et al. (U.S. Patent No. 5,567,416), Smith et al. (U.S. Patent No. 4,735,626), and Shibantai et al. (U.S. 4,808,396).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Specifically, the new limitation of an emission element being a pad necessitated a new search. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Conley whose telephone number is 571-272-8414. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rick Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

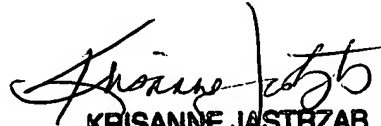
Art Unit: 1744

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SEC

A-E-C-

February 10, 2006


KRISANNE JASTRZAB
PRIMARY EXAMINER